approach

SEPTEMBER 1979 THE NAVAL AVIATION SAFETY REVIEW

What Is Your Standardization Awareness Quotient?

By Maj J. D. Cotton, USMC
MAG-12 NATOPS Officer

YOU and I have read countless articles on the subject of the importance of standardized procedures, and on why we should maintain an awareness of the dangers of complacency. In this article, I will take a slightly different approach by examining the interrelationship between standardization and complacency.

By the very nature of repeatedly following the tried and proven NATOPS and maintenance procedures, each of us begins to establish a fixed routine that soon becomes a well-accustomed habit. We become so at ease and self-satisfied in performing these procedures that we can "do them in our sleep."

At this point, that ever-present culprit, complacency, arrives on the scene. By definition, complacency is the secure satisfaction with ourselves, accompanied by an unawareness of actual dangers or deficiencies around us. The key word to emphasize is *unawareness.* How can each of us overcome and control complacency?

I think we can go a long way in combating complacency by maintaining a conscious awareness as we perform our standardized NATOPS and maintenance procedures. We could define this desired trait as a *Standardization Awareness Quotient.* To develop the quotient, try to accurately remember the times you were fully aware of performing a procedure versus the times it was done without conscious effort. If you are able to maintain a high quotient, you should be alert to any procedures omitted, or to any nonstandard ones being performed.

This awareness should sound your internal "warning bell," so you can devote increased attention to this nonstandard situation. Being fully aware that an unusual event is unfolding, you can bring your experience, coupled with the proper NATOPS procedures, to the forefront in controlling the situation in a safe and professional manner. However, if you fail to maintain a conscious awareness in following standardized procedures, you will have a low quotient. You are unconsciously setting yourself up for a very large dose of complacency. This can lead to an early termination of your aviation career, at worst, or an aircraft or maintenance incident, at best. Either way, everyone loses and complacency claims another victim.

Control complacency by maintaining a high conscious awareness as you follow your standardized NATOPS and maintenance procedures. Understand what you are doing every time you act. You'll live a lot longer for it.

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A preserver with

By George Gillespie
Naval Air Development Center

THERE is no doubt that one of the most important single items of lifesaving equipment worn by the Navy aircrewman is his life preserver. The life preserver, once inflated, permits the water-immersed crewman to safely collect his thoughts, swim to and board his liferaft, and establish and maintain communications with nearby rescue groups. Without a properly functioning life preserver, the picture is completely changed; the survivor is committed to struggling to stay afloat and alive.

The Navy has gone through a number of evolutionary improvements in preservers in the past 20 years, and is on the verge of upgrading the current LPA-2 and LPU-21/P life preservers even further.

The LPA-style preserver became the Navy's life preserver during the mid-sixties (Southeast Asia crisis), in response to the growing demand for greater buoyancy and better orientation of the survivor in the water. In its earlier days of Fleet use, the LPA preserver (then designated LPA-1) went through some growing pains stemming from design inadequacies, and to a greater degree, from poor manufacturing workmanship.

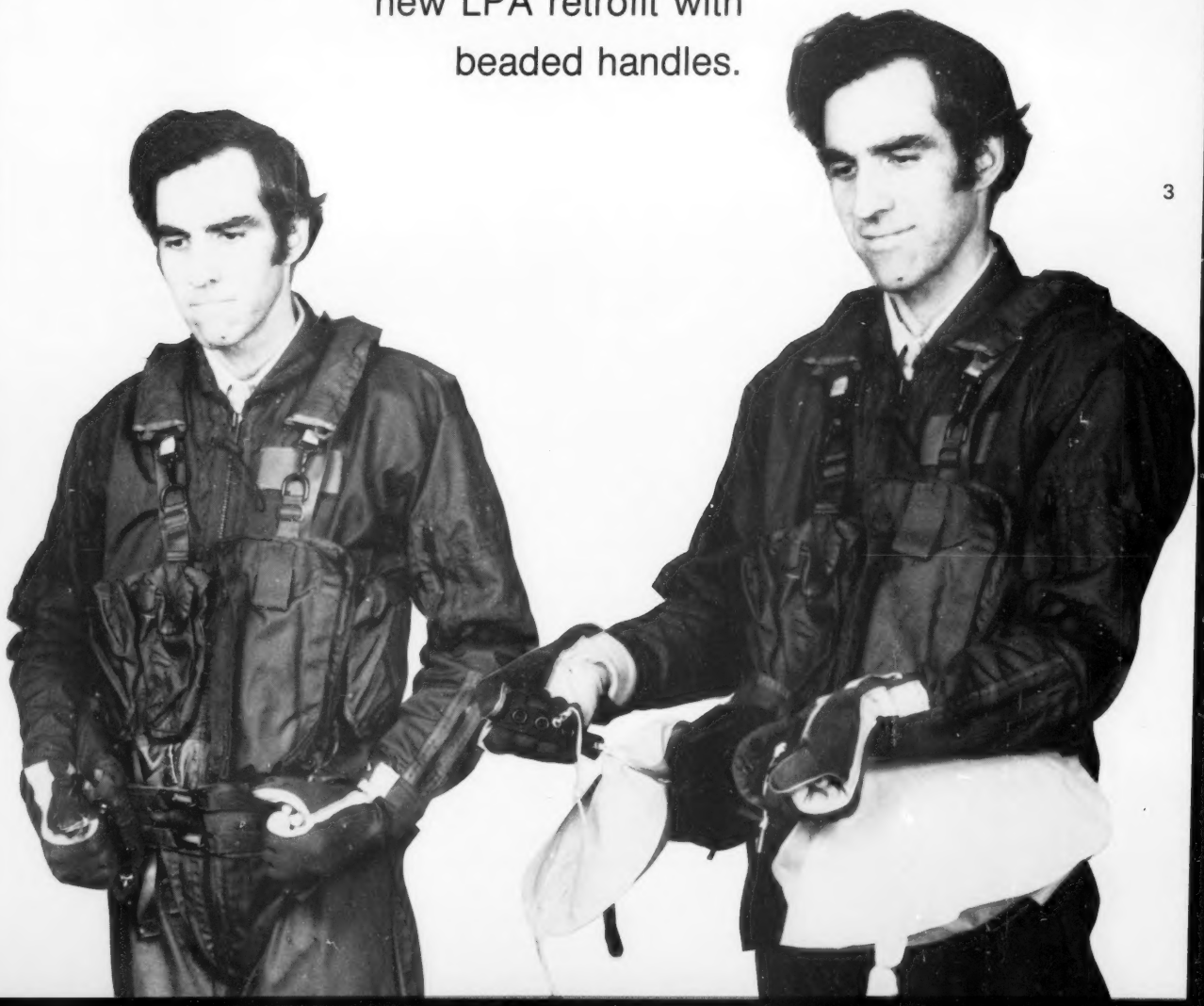
The LPA endured rather well, as evidenced by the fact that the basic design is still with us some 10-12 years later. Admittedly, changes have been made to the original version, to offset earlier faults, thereby resulting in a much more reliable item of lifesaving equipment.

To date, the more significant changes to the series of LPA preservers have been the modification of the earlier bladder system to two independent and symmetrical cells and the conversion of the nylon cloth casing to one of fire-resistant, aramid fabric.

Continued

lots of pull!

The author demonstrates the ease of actuation of the new LPA retrofit with beaded handles.



A front view of the LPA life preserver with the beaded handle retrofit kit installed.

At the moment, there are four major improvement programs underway to still further improve the performance of the LPA life preserver.

The programs include improvement of collar lobe inflation; the introduction of an omnidirectional-pull CO_2 inflator; the development of an automatic water-activated CO_2 inflator; and the introduction of a beaded handle pull system for the CO_2 inflator. The latter program, which will result in a Fleet modification, is the subject of this article.

The LPA pull toggles have long been a source of complaint due to the difficulty of locating the toggles when under the stressful conditions of water survival. The obvious reason for having kept the toggles to a minimum size was to avoid possible snagging and inadvertent inflation; for this reason alone there has always been a reluctance to increase the size of the toggle. There has also been a strong belief that, with adequate training, the crewman could adequately and instinctively locate the toggle. Obviously, this has not always been the case.

Therefore, due to renewed pressure to find a solution to the toggle problem, NADC has designed a modification to the pull system which, by all indications, will put this problem to rest. The impetus to the redesign effort was, in part, a suggestion submitted by LT C. Ackerbauer, VA-128, NAS Whidbey Island; the suggestion involved replacing the present button toggle with a 1½-inch diameter ball. While the ball did provide some help in ease of location, the obvious tradeoff was the hazard of snagging and accidentally actuating the CO_2 cylinder. That was a high price to pay for any benefits the change might offer.

In an effort to achieve the best of both worlds, namely to develop a pull mechanism that is both low profile and yet more easily accessible, NADC devised about 10 proposed solutions and constructed prototypes of each. The designs involved the use of beaded handles *(an offshoot of a design used successfully in the British Navy and Air Force and also used in the USMC AV-8A aircrew equipment assemblies [MK-12 life preserver] before being replaced in 1977 with the retrofit of the Stencel Ejection Seat in the AV-8A)* and dowel-shaped handles in various positions and orientations. By means of trial actuations, and subjective discussions with experienced pilots, the prototypes considered worthy of further investigation were reduced to three, in addition to the ball technique recommended by LT Ackerbauer.

Preservers incorporating the four candidate configurations were subjected to a series of pool tests, with subjects fully configured as fighter/attack pilots. The four toggle designs tested were the large ball-type toggle, and beaded handles vertically aligned, 45-degree aligned, and 135-degree aligned.

Following 22 inflations, during pool tests involving high dives and a variety of disoriented entries into the water, all subjects were unanimous in their preference for the vertically aligned beaded handle. Their selection was based upon the fact that the vertically aligned arrangement was best for location and that it provided a multi-

Fig. 1

directional actuation capability, the reason for which will be described later. To further confirm the reliability of the choice, new subjects were then subjected to a series of Dilbert Dunker and parachute drag tests at the aviation Physiological Training Unit, NAS Norfolk, and, once again, easy location of the handles and prompt actuation were repeatedly and successfully accomplished. Similar results were also documented at Deep Water Environmental Survival Training (DWEST) at FASOTRAGRUPAC, NAS North Island. In fact, at the time of this writing, "first attempt" location/actuation was demonstrated in all 47 life preserver inflations.

Let us examine the nature of the toggle change and explain why the direction of pull is not as critical when compared to today's method of actuation. An illustration of the change is shown in Fig. 1. Continued

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A comparison of the size and location of the new beaded handles with the old toggle pull actuator.

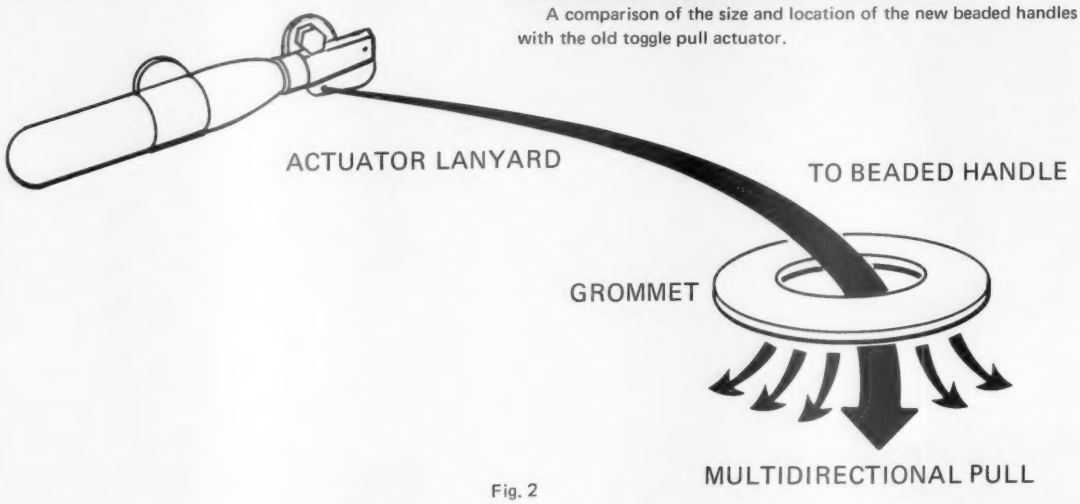


Fig. 2

The beaded handle is held to the inside front area of each waist lobe by means of a nondirectional snap fastener/webbing assembly. A locking pin lanyard and an actuator lanyard, which are knotted to the handle assembly, pass through two installed grommets on the preserver casing. When the beaded handle is pulled, the locking pin releases the casing closure, and the actuator lanyard pulls the inflator lever to induce preserver inflation. The attractive feature of the modification is that the beaded handle can be pulled in a wide range of directions and still not compromise the performance of casing release and inflator actuation. The reason for this is that both lanyards, regardless of how they're pulled, must pass through their respective grommets. The grommet then governs the direction of lanyard pull to provide optimum performance. In the case of the actuator lanyard, the multidirectional pull of the beaded handle is translated into the optimum pull for the actuator, as shown in Fig. 2. Even though there is a wide latitude of pull, the recommended direction of pull on the beaded handle is straight out from the body, because the test subjects have reported it to be the most natural motion.

Because of their stowed location, the beaded handles are least exposed to the hazard of snagging and inadvertent actuation. Furthermore, the four-snap attachment of the handle to the casing is strong enough to resist easy disengagement and to make a crewman aware that snagging has occurred.

The preserver modification was demonstrated to personnel at NAS Whidbey Island and it was well received. MATVAQWINGPAC at NAS Whidbey Island is evaluating this modification to establish assurance that the beaded inflating handle produces no significant snag potential.

Following verification of the Aircrew Systems Change, a procurement of retrofit kits will be made so that compliance with the ACC can be rapid, and have minimum impact on the workload of Fleet personnel.

The ACC and retrofit kit should be ready for issuance to the Fleet by November of this year. The update of manuals and the preparation of documentation for future procurements of preservers reflecting the new change will follow.

(NOTE: The actual color of the beads in the retrofit kit, to be issued to the Fleet, is black. White beads were used in the accompanying photos for clarity of illustration only. – Ed.)

Engine operation danger areas

By Helicopter Anti-Submarine Squadron-2

AS it is routinely said aboard any carrier, the flight deck is the most dangerous place on the ship. Just how subtle the dangers, and how quickly the results of inattention can occur, was recently demonstrated aboard one of our carriers during preparations for a routine night launch. Only because of the instinctive and heroic actions of a flight deck troubleshooter is one HS plane captain able to recount this incident from which others may learn.

It was just barely dusk as an SH-3D was spotted for takeoff. Plane captains from the helicopter crew had removed the chocks and chains. Following the helicopter's departure, they began walking aft and toward the catwalk to stow the chocks and chains in their normal place, adjacent to spot four on the angle deck. The jets were started and some were being taxied forward toward the catapults. One of the plane captains was aware of this and focused his attention on a taxiing F-14, thereby giving himself an extra margin of lateral separation from the aircraft. In doing so, his path took him directly in front of the intake duct of an A-7E, which was turning at idle power. The flight deck troubleshooter assigned to the A-7E recognized the danger and immediately rushed to grab him. He was able to reach him and physically haul him to the deck just as his shoulder was nearing the intake duct lip. His immediate recognition of a hazardous situation, and his quick action in the face of personal danger, undoubtedly prevented serious injury to the plane captain and damage to the aircraft engine.

As a result of this incident, the plane captain and his safety representative reviewed the intake/exhaust danger areas as shown in the NATOPS Manuals of the squadrons assigned to the air wing. In the simplest terms, jet engines produce the power to propel the aircraft by taking a large volume of low pressure air, compressing it in the forward section of the engine, and, by adding fuel and igniting the mixture, change the air into high pressure-high temperature exhaust called thrust. The volume of air which is ingested through the intake is dependent upon engine speed and, generally, the hazard associated with this airflow increases as a function of engine speed or power setting. Because of this, the inlet danger areas increase significantly at engine speeds above ground idle.

All plane captains and squadron flight deck personnel have reviewed intake and exhaust hazards, and periodic refresher training is conducted so that, when necessary to cross the flight deck with turning aircraft, all hands will know and avoid the danger areas. Three general rules can be applied to similar situations: (1) *Don't* walk through the pack of aircraft; (2) If you *must* walk through the pack, *treat* each aircraft as though it were turning; (3) *Know* the safe distances and avoid the intake and exhaust danger areas.

AO3 DAVE CAMERON
AT3 BOBBY ECKELS
AWAN FRED LOSKE

BRAVO ZULU

Harrier on Fire!

WHAT began as a routine parts pickup/gas stop for a transiting P-3C crew turned into an extremely challenging situation with a huge pucker factor for three VP-48 aircrewmen.

Petty Officer Third Class Dave Cameron and AWAN Fred Loske were heading toward the local gedunk for a bite to eat when AO3 Cameron saw the fire. The hangar they were passing had four AV-8 aircraft parked along the back wall. Cameron saw a flaming bucket of JP under the belly of the third AV-8 and immediately sounded the alarm as he raced to lend a hand. AWAN Loske was right on his heels. Both sailors searched the hangar frantically for an alarm box as they approached the rear of the hangar, and the endangered *Harrier,* at full speed. Unable to locate the hangar alarm, each man grabbed a CO_2 fire bottle and proceeded to save the stricken bird. At this point, flames were leaping high out of the bucket of JP, scorching the underside of the aircraft. Someone yelled, "Move the bucket!", and a young Marine maintenanceman rushed to push the flaming container forward with his bare hands! This attempt not only burned his hands, but caused the fuel to spill. The fire spread further. Flames now engulfed the complete underside of the aircraft and a tow tractor parked near the starboard wing. But Cameron and Loske held fast. Each man planted himself on an opposite wingtip and tried to battle the flames back under control. AT3 Eckels, another member of the *Orion* crew, successfully removed the flaming container using a long screwdriver and a ball cap to shield his hands. With the bucket removed, Cameron and Loske still had to contend with a steady stream of fuel leaking from the *Harrier's* belly. They held their ground . . . hoping against hope that the flames wouldn't ignite the aircraft fuel cells, sending them and four valuable war machines to their doom.

Their raw courage and determination prevailed. The remainder of the fire was quickly extinguished and the four helpless planes were saved.

We proudly salute Boomerangers AO3 Cameron, AT3 Eckels, and AWAN Loske. Their split-second reaction to this emergency situation clearly demonstrates that aircrew emergency training pays great dividends. Their ability to think on their feet and react correctly was instrumental in avoiding the complete destruction of four multimillion-dollar aircraft, a multimillion-dollar hangar/maintenance facility; and severe loss of life. Well done!

Left to right:
AO3 Dave Cameron,
AT3 Bobby Eckels,
AWAN Fred Loske

Progressive Systems Failures

By LCDR Barry F. Schwoerer
VS-38 ASO

THE crew, an experienced former FRS instructor/second tour pilot, and a first tour, but deployment-experienced, pilot briefed and launched on a "routine" instrument round-robin. The aircraft, an S-3A, has multiple navigation systems, making navigation and instrument flight in all weather, day or night, a piece of cake. Right? Read on!

Shortly after departure and at flight level, the INS dumped, reducing the flight to one primary attitude source, single-channel autopilot, and reducing navigation to TACAN. Two hours into the flight, the TACAN failed. The copilot (aircraft commander) safed the ejection system, then went aft to the electrical load center to check the TACAN circuit breakers in an attempt to regain use of the only remaining navigation aid available for airways navigation. After cycling the two left CB panel TACAN circuit breakers, and while consulting the NATOPS pocket checklist for right CB panel TACAN breakers, the aircraft entered a sudden pitchup into stall warning buffet, followed by a nosedown pitch. This was probably caused by the pilot countering the pitchup and disconnecting the autopilot.

The copilot was thrown violently around the aft avionics compartment, breaking his helmet visor housing and sustaining minor abrasions and bruises. Without TACAN, and now experiencing an unassociated IFF failure, the crew joined another squadron aircraft to return to Homeplate. Flight to penetration was uneventful. During the approach, and in actual IMC, "gremlins" once again appeared. Transition to landing configuration revealed trailing edge flap lock and an antiskid fail caution light. The crew lowered the arresting hook and successfully completed a no-flap, arrested landing, mercifully ending a "routine" instrument roundrobin.

Six separate systems failures and a roller coaster ride were handled professionally and in accordance with NATOPS. This experience proves that even the most routine flights, with the best equipped aircraft, flown by experienced crewmembers, can turn into a bag of worms. When was the last time your squadron considered or practiced multiple emergencies and multiple systems failures?

Anymouse

A 35,000-Pound Glider

WHILE level at 17,000 feet on an EA-6B postmaintenance checkflight, I commenced the required air start check on the starboard engine. I secured the starboard throttle and readjusted the port throttle setting to maintain level flight at 300 KIAS. I then turned the engine master switch off. The result was a noticeable decrease in the cockpit noise level. This and the decreasing instrument readings on the port engine made me painfully aware that we had attained glider status. Not immediately realizing the cause of this dire turn of events, I announced our situation over the ICS and deployed the RAT in accordance with the dual engine flameout emergency procedures. My right-seat ECMO immediately called that the port, vice starboard, engine master was off. (Of course! But how long would it have taken me to figure out what I had done?) I flipped the switch back on and air-started the port engine. Total powerless flight time was about 15 seconds. The only damage: a precipitous loss of self-esteem. The potential consequences: disastrous.

I've learned several things from this Delta Sierra attack: 1) I'm now infinitely more deliberate when manipulating switches on the engine master panel; 2) I've decided it is unnecessary to cycle even the correct engine master when performing a test flight air start. NATOPS is not specific on this point, and discussions with other pilots revealed a lack of standardization in this procedure; 3) As in many other incidents related in APPROACH, I had made the major error in switchology and had failed to recognize the cause when the effect became obvious. There is a weakness in current EA-6B emergency procedures, as they do not call for checking the engine master switches on when responding to a flameout; 4) An alert right-seater is nice to have along!

Glidermouse

We don't know if Glidermouse initiated a NATOPS change, as he should, but the model manager has assured us that this topic is an agenda item for the next NATOPS conference. –Ed.

IFR Flight Separation

AS an air traffic controller at a Far East Air Station, I have witnessed and been involved in several situations that were dangerous and could have been avoided if the pilots involved would have thought ahead and preplanned their flight more thoroughly. Below is an example of what I mean.

Three F-4s were departing Far East Air Station on an IFR flight plan to Air Force Base Farther East. The departure field was IFR, and no tops had been reported. (Previous departures had been cleared to FL310 and none had reported VFR on top.) The flight was cleared for takeoff and the three aircraft rolled with about 10-second intervals. After they were airborne, Dash 2 and Dash 3 could not obtain visual contact with the flight leader or each other. As a result of this, all three aircraft were within a

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

2-mile radius and requesting ATC to provide individual separation. Taking into consideration the limited airspace given to approach, by using a lot of skill, a little luck, and a short prayer, the controller was able to separate the flight and provide individual vectors to each aircraft. Luckily, the three aircraft encountered an area in which they could join VFR and continue the flight.

This particular situation could have been avoided if the pilots had filed separate flight plans. The only delay they might have received would have been a 2- or 3-minute interval between takeoffs. I don't feel that this is asking too much to ensure flight safety when weather reports indicate poor flight conditions.

Scopemouse

Why Safety Officers Turn Gray

HERE'S how the above admonitions were effective for an experienced, respected junior officer. He's a single-seat jet aviator.

The aircraft was downed for bad external fuel indications, but the skipper upped it for a one-time flight as section leader of an air-to-mud flight – because we needed the "X." Meanwhile, continuing maintenance action resulted in NO fuel indications at all.

This was properly written up, and the outstanding gripe was placed next to the one-time-up note. A pilot read both, frowned and shrugged like everybody else, and manned the aircraft. Normal preflight didn't include looking in all fuel cells. It wasn't until he was turned up that it occurred to him that he really had NO idea how much fuel he had. He completed the mission anyway, but he was nervous as a cat the whole time.

Recap. Nobody in the outfit questioned the maintenance note, the CO's awareness of the problem, the timing, the need for the mission, or the bird's actual status. Let's put it another way. The CO gave an order and everyone blindly and stupidly obeyed it. The pilot stated it *never* entered his mind to refuse or down the aircraft – or even to call base for a "go" confirmation.

Ravingmouse

Ground Him or Shoot Him?

UPON returning from an overwater operational flight, the crew of a P-3 experienced strong headwinds and arrived in the terminal area with less fuel than the minimum on-top requirement. We had 5000 pounds instead of the 6000-pound fuel requirement – but still enough for almost 2 hours of flying. Then, when the copilot placed the gear handle down, the nose gear would not indicate down and locked.

After futilely trying NATOPS procedures, the pilots requested a tower fly-by for a gear check. Approaching the field, the nose gear suddenly indicated down. The pilots hastily decided to land on that approach, quickly reviewing the landing checklist, and received landing clearance.

On very short final, the pilot in command, sitting in the copilot position, decided they would be landing long and ordered, "Take it around." The left-seat pilot responded with, "I can make it," and proceeded to plant the airplane, pushed the yoke forward, and used hard reverse and braking to stop on the runway. Taxiing, the pilots noticed the nose gear was shimmying. Further analysis showed the nose strut to be bottomed out and damaged.

The left-seat pilot later explained that he didn't want to make another approach because of fuel

considerations. This is a classic example of creating urgency where there is no urgency, and begs the question: "What does an order from the pilot-in-command mean?"

Urgentmouse

Equal Treatment for Helos

LATE at night, coming in on an IFR clearance (in my rotary-wing aircraft), I requested a GCA. Approach told me to hold 16 miles out because "there's an F-4 shooting practice GCAs." I had been under the impression that IFR traffic took precedence, but apparently I was wrong. When I finally got a GCA, I was told to break it off and enter downwind when I was 3 miles out because "there's an F-4 doing touch-and-go's." On short final, I was told to expedite my approach with no delay on the runway because "the F-4 is coming in to land." I am tired of – if not used to – receiving this type of second-class treatment.

Secondclassmouse

submit an

ANYMOUSE

prevent an accident

MONTH OF OCCURRENCE:

STATE — WHAT — WHERE — WHY; HOW IT CAN BE PREVENTED OR CORRECTED

ANYMOUSE

Does it do its job?

By LT Glenn L. Kaden
NAVSAFECEN Helo Analyst

WHATEVER happens to those Anymouse forms that are strategically placed throughout your squadron area? They obviously aren't there for decoration, but have you ever wondered how they help promote safety? With the aid of one simple ingredient – YOU – the Anymouse form can play a major role in safety awareness and accident prevention.

When the form is received at the Naval Safety Center it is forwarded to the head of the Aviation Directorate for review. A copy is also sent to the Safety Publications Department. Depending on the information contained in the report, the form can follow one of several different routes.

If the Anymouse is unsigned and is just reporting a "hairy" incident, it more than likely will be used in APPROACH or MECH. Someone else's close call, stupidity,

be used to submit any constructive item affecting safety, including equipment, ...
...ters. Reports may be signed or remain anonymous. The identity of the writer ...
... Center (Attn: Safety Education Department) ...

shortcut, or what have you could be fascinating reading for other aircrews. It is less painful to read about some other guy's misfortune, and hopefully learn from it, than it is to experience your own!

Another typical, unsigned Anymouse is the one that gives more details about a situation or incident than were officially reported. Reports such as these are viewed with concern. While the information contained in the Anymouse could be in error, cases do occur where the incident is not properly reported. The Safety Center tries to look into these isolated cases, find out the specifics between the conflicting reports, and stress the reasoning behind and the necessity of truthful, timely incident reporting to all concerned.

The Anymouse can also be used to submit constructive suggestions and ideas. For example, one Anymouse suggested that a bubble-type window be installed in a certain helicopter to enable the pilot to more easily see beside and behind his aircraft. While this would be convenient at times, there is no hard necessity for such a window. The Safety Center analysts discussed the possibilities of this change and decided that there were very few instances when it was essential to have such a window. A couple of squadrons were called and they agreed that it would be nice to have but not absolutely necessary and that "the money would be better spent on other things such as helicopter aircrew survivability programs." This particular Anymouse was signed and the author was contacted and informed of the various discussions, thoughts, and problems associated with his submittal.

Another Anymouse received at the Safety Center pertained to helicopter pendants and the possibility of them whipping back through the access door during inadvertent load release. A thorough investigation of all incidents pertaining to the sling for the past 5 years was conducted, and it was concluded that an incident of this nature had never occurred. However, it was decided that the possibility of this happening did exist, and a routine NATOPS change was submitted to the model manager. Again, the man who submitted this Anymouse gave his unit and phone number and was officially notified of the action taken.

As can be seen, the Anymouse form can be utilized in different ways, all of which can promote safety. The next time you witness that scary incident or have that brilliant idea, don't keep it to yourself. Tell the Fleet – fill out an Anymouse form – and make people aware of your thoughts and ideas. The Anymouse form has been, and can continue to be, a viable tool in building safety throughout the Navy and Marine Corps.

"Now bring on that *Tomcat*!"

The Anymouse form should not be used as a lazy way to send in a poster order, letter to the editor, or other Safety Center correspondence. It is intended for accident/incident reporting comments, observed unsafe practices, lessons learned, etc. – Ed.

Unbriefed weather

THE crew of an H-53 was scheduled for a VIP, night, logistics flight. They were planning to fly airways from Homeplate to a carrier anchored out in a harbor, at one of the world's busiest seaports.

The weather briefing is of interest. Ceilings en route were reported to be 2000 overcast, freezing level on the deck, visibility 1-3 miles in precipitation, light to moderate ice in showers, occasional snow showers, and a 1 to 2 percent chance of thunderstorms. Point B was clear at departure time and forecast to remain clear. Minimum en route altitude at the highest point along their route was 8000 feet.

The pilots received their clearance as requested, departed on time, and took off at 0430. They entered the clouds at 5000 feet, during a climb to their assigned altitude of 10,000 feet. The outside air temperature at cruising altitude was -20°C. The anti-ice and ice detector was on, EAPS closed, and continuous ignition was selected.

About half an hour down the road they began breaking out of the cloud tops occasionally, and they intermittently picked up light rime ice. This lasted for the next hour. At 0600, after passing a prominent checkpoint, they entered an area of severe turbulence and encountered a severe downdraft. In much less time than it takes to tell it, their airspeed dropped to 45 knots and their rate of descent exceeded 4000 fpm, despite 110 percent torque.

The helicopter began to experience severe airframe vibrations, and the ice-detect system indicated a moderate accumulation of ice. During the descent, the helo was completely out of control. It did not respond to any control inputs, and the only thing that kept it from becoming unglued was that it was descending in a reasonably level attitude.

The H-53 descent slowed at 6000 feet, but didn't stop until it reached 3000 feet. Immediately thereafter, the helicopter got on the express elevator going up and rose to 5000 feet without any effort on the part of the pilots. The descent and climb took approximately 60 seconds.

After that, the pilots were home free. They popped out of the clouds and could see the lights of the shoreline about 20 miles away. The highest terrain was behind them and they could start easing on down, VFR. Rather than proceed to the carrier, they landed at a seaside airport to see what they could see. They saw a 1-inch diameter hole in the leading edge of one tail rotor blade, but could find no more airframe or rotor blade damage. The bad blade was replaced.

This crew was lucky! The requirement for IMC flight at night, at high altitudes, placed the pilots in the most undesirable flight regime. In many areas the lack of reliable reporting stations results in scanty meteorological data available for forecasters. Don't believe you've heard it all when your weather brief ends!

A near rollover

TWO pilots were in the cockpit of a CH-46, which was tied down on spot 2 for a dawn launch. A positive preflight of tiedown chains was made by the crew chief and flight deck petty officer.

Winds for turnup were not passed by primary, nor requested by the pilots. Briefed winds were 30 degrees to port at 15 knots. The sea state was causing moderate rolls.

Engine start, rotor engagement, and cockpit procedural checks were normal. The aircraft was ready to launch for several minutes, with the collective in the 3-degree detent, cyclic centered, rotor RPM at 100 percent, and the ASE and SAS off.

The ship was in the normal LPH starboard list. Without notification, the ship commenced a port turn to come into the wind, which increased the starboard list. The helicopter started a right roll to about 10-15 degrees with the port main gear raised about 4 feet. Left lateral cyclic, with the collective bottomed, had no effect as the helo rolled starboard toward a pack of helicopters.

The pilots felt no restraint from the port or nose tiedown chains. The copilot pulled full UP collective. The starboard main gear tiedown chain sheared at the hook point, attached to the deck padeye. The helicopter was flown up and over the pack of helicopters. They entered the "delta" for a control check and then executed a normal recovery to spot 7. The tiedown chain was still attached to the port main gear upon landing. The spot 2 LSE found the nose gear tiedown chain intact and the starboard tiedown chain sheared at the hook point.

The probable cause of the helo rollover was the combination of the port main tiedown chain not being securely hooked into the flight deck padeye, plus the effect of both the port wind and starboard list. Even though the tiedown chains were preflighted prior to engine start, the statements from witnesses and the physical evidence indicate that the port mainmount tiedown chain could not have been secure at the time of takeoff.

When the aircraft rolled right, with the starboard mainmount secured, a dynamic tipover condition was introduced – despite the prescribed corrective NATOPS procedures already being applied. The experience and presence of mind of the copilot enabled him to recognize that the tipover angle had been reached and that the only alternative to rolling over was to fly the helicopter off the deck. The aggressive power demand overcame the starboard restraining force and in effect righted the helo. The crew and the aircraft were saved because of the copilot's immediate action. Attaboy to both pilots: Capt T. E. Harris, the HAC, and Maj G. L. Loomis, the copilot, both of HMM-263. ◄

"One day I overslept or i

By LCDR Phili

The day I slept in,
I was set with my crew
For a long P-3 flight.
I would bag ten point two.

My spouse woke me up with,
"Get out of here, Joe.
You said you'd be due
O're an hour ago."

Still zipping up,
Took to the road in my car.
If you jumped a few lights,
It was not all that far.

I snatched up my flight bag
And laid tracks 'cross the lot.
I leapt up that ladder
And my TACCO was hot!

"Where have you been?" glared he,
"We've got problems a bunch.
One gyro burned up and
We still don't have lunch."

I snapped up his list,
Looked for my ole two P,
But a new face was there
Where my expert should be.

"Why haven't you filed yet?
Cause you wanted to know–
The route and the height that
I thought we should go?"

"Good grief! File any plan.
Now you sprint out of here.
Get back in 10 minutes
Or no landing this year."

I ran to the hangar
To the gedunk for food.
The sign said CLOSED,
And I said something rude.

Hit the candy machine,
On the way for a look
At the maintenance board
And the yellow sheet book.

My assistant ran up
With some very tall piles.
Said I'd better sign them soon,
Or catch heat and no smiles.

I got it all signed.
They could go in today.
But, damn it, now takeoff
T'was three zero away.

' is your preflight all wet? "

t Philip A. Tower, USN

"Can we talk?" TACCO said
As I smoked right through there.
"We haven't got time now;
Let us brief in the air."

"Now quick, get the hatch shut!
Rats! Forgot my LPA."
My headset was missing.
This just wasn't my day.

The CP chugged up
And said with no grin,
"I hope it's all here, boss,
Cause I just made it in."

"Checklist!" I shouted. "We
Have no time to waste.
To take off on time,
We must really make haste."

I started them up while
He strapped in and said,
"Oh, wait, where's the weather?"
I just rolled straight ahead.

"I'll get the checklists
While our clearance they send.
You tell them we're set
When we get to the end."

"Just give me your backup.
Being on time is the goal.
Read my climb in the air.
We'll go on the roll."

We got up to speed then,
And precisely on time.
I'd hurried a little,
But success, it was mine.

"Now gear up," I called,
"Say, which way do I turn?"
I could relax then, for
We'd 10 hours to burn.

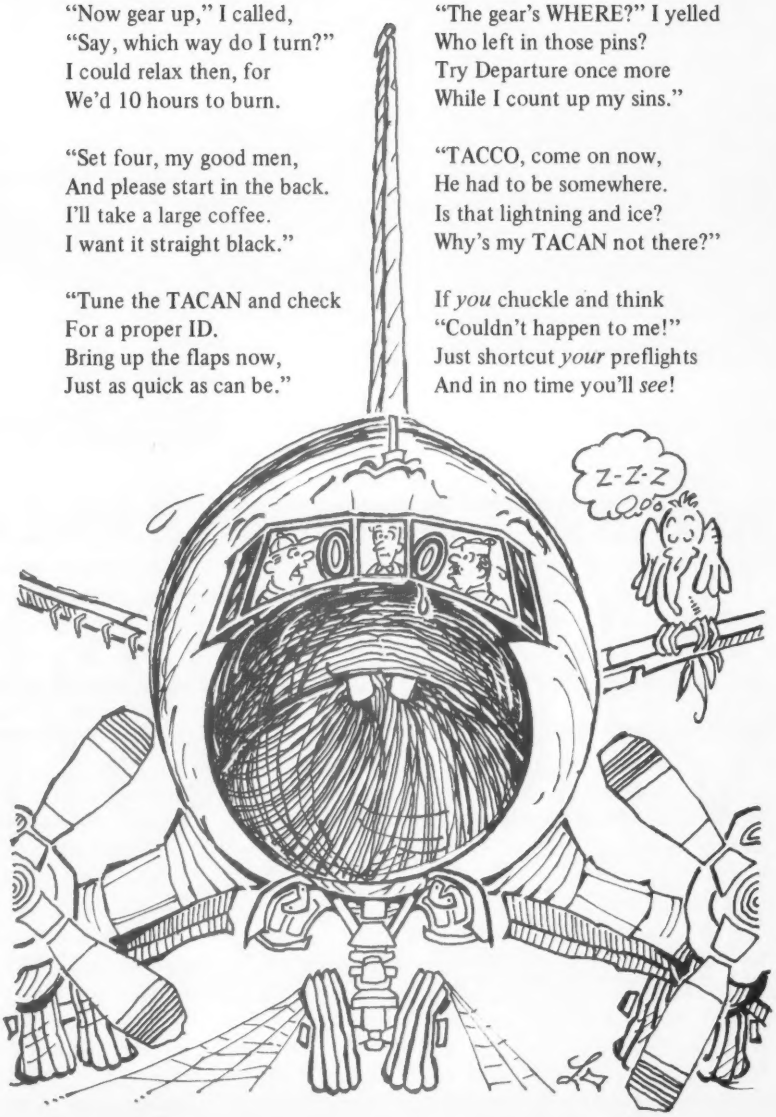
"Set four, my good men,
And please start in the back.
I'll take a large coffee.
I want it straight black."

"Tune the TACAN and check
For a proper ID.
Bring up the flaps now,
Just as quick as can be."

"The gear's WHERE?" I yelled
Who left in those pins?
Try Departure once more
While I count up my sins."

"TACCO, come on now,
He had to be somewhere.
Is that lightning and ice?
Why's my TACAN not there?"

If *you* chuckle and think
"Couldn't happen to me!"
Just shortcut *your* preflights
And in no time you'll *see*!



Nothing under the sun is ever accidental.
Gotthold Lessing

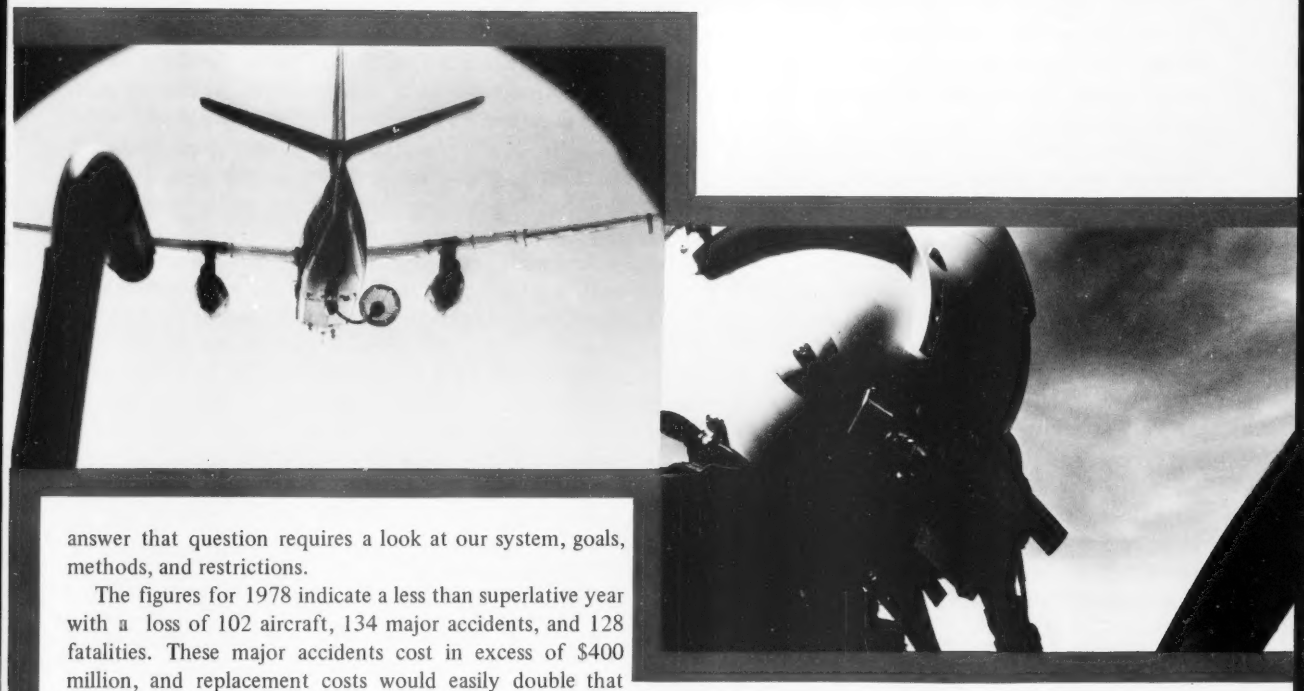
AIRCRAFT ACCIDENT PREVENTION

ANOTHER VIEWPOINT

By CDR Orville Wright
Chief Test Pilot
Rotary Wing Aircraft Test Directorate
Naval Air Test Center

THE Navy has apparently reached a plateau of having one major accident every 15,000 flight-hours and, with no change in the present system, there is no logical reason to expect significant improvement. Perhaps it is time to examine other possible alternatives and evaluate them against our present system.

Assuming that there are no aircraft accidents; only errors in design, manufacture, or procedures, why aren't we more successful in our aircraft accident prevention program? To



answer that question requires a look at our system, goals, methods, and restrictions.

The figures for 1978 indicate a less than superlative year with a loss of 102 aircraft, 134 major accidents, and 128 fatalities. These major accidents cost in excess of $400 million, and replacement costs would easily double that figure.

Our system is basically a reactive one. We report all accidents and incidents, both ground and airborne. Major accidents are investigated by mishap boards which determine causes and recommend preventive measures for future flights. From these facts and figures we utilize a reward and punishment system to reduce the losses. We have safety departments, safety committees, anonymous reporting programs, safety posters, safety magazines, safety stand-downs, and safety training schools. We have rewarded commands with no accidents and we have relieved commanding officers assigned supervisory error in accidents. There does not seem to be a panacea. Accidents continue.

It is interesting to note that, in determining the causes of major aircraft accidents, pilot factor has been dominant, followed by maintenance error and material failure. Aircraft design, as a cause factor, has traditionally been sacrosanct, perhaps because aircraft are procured based on requirements and built to specifications. To find design fault in operational aircraft would be to point an accusing finger at the highest levels of naval aircraft procurement; not an inviting assignment. In addition, design is the most difficult deficiency to quantify and to correct. No "reasonable" man would recommend grounding an aircraft just because a design deficiency increases its mission failure probability. And, of course, all military training stresses maximum utilization of your equipment with minimum complaint. It adds up to design rarely being assigned as a cause factor in the history of naval aviation accident reporting. The accuracy of a system that has consistently ignored this factor would be challenged by any probability expert.

Manufacturing defects are fingered as a cause factor if you can find the broken part. When identified, the problem is easier to cope with and, in fact, a major thrust in the developmental process is evaluation of aircraft reliability. It is well documented that reliability must be designed into equipment, and, until contractors are held accountable for reliability, the mean-time-between-failures of major aircraft components will remain unsatisfactorily low. Significant progress is being made in solving this major problem by contracting for reliability performance, conducting failure mode analysis, and derating equipment by design.

The one remaining error is in procedures. The Navy made a quantum jump in safety and effectiveness with the advent of the standardization program. Very few accidents are attributable to erroneous information found in the NATOPS manual. That is not to say our manuals are perfect. There is no doubt that they could be improved by

explaining "why" certain emergency procedures are prescribed rather than expecting pilots to accept the "minds greater than ours" theory. But that does not explain why there are so many procedural errors. The truth is, the nature of naval aviation lends itself to procedural errors. For example:

- Rapid turnover of personnel and supervisors – Everyone has just gotten there or is ready to leave. Average experience levels are declining and training becomes a never-ending program.
- Operating conditions aboard ship are not conducive to safety – The environment for safe operations is most severely strained on a carrier deck. The task of getting on and off a pitching deck at night allows very little leeway for error, and our embarked accident rate reflects it.
- Operational decisions versus preservation of assets – Just as military planners are often justifiably criticized for not taking cost into consideration, so a case could be made for their efforts toward preserving assets (aircraft). This is a difficult one to quantify, but our system must put higher value on reducing operational risks even at the expense of operational readiness.
- Realization by aviation personnel of their responsibilities – This is by far the most important aspect of all the procedural errors listed, and the pilots and their supervisors are the primary targets. We must all be made to realize that an aircraft is a major investment and that we are charged with its effective and safe utilization. The average cost of each of the 103 aircraft the Navy is buying in FY-80 is $21.4 million! Perhaps it is time to say, "Preservation of the aircraft we have is more valuable than operational readiness." As heretical as this view is, it may be our only solution. Platitudes and slogans will not do it.

Anti-FOD devices should be designed into the aircraft engines to reduce this debilitating factor. Testing and certifying activities should be separated from the political pressures of getting the aircraft to the Fleet. They should report on, rather than to, the developing activity. Operational commanders must not accept losses as the price of doing business. Commanding officers must realize that nothing surpasses the importance of safe operation of their aircraft.

And lastly, in recognition of the investments involved, each flight must be treated more like an Apollo launch. Pilots and maintenance personnel directly reflect the importance that the "bosses" put on the mission. Our maintenance system has sufficient checks and balances to prevent mistakes as long as someone in the chain doesn't fail. The standardization program prevents unqualified or unknowledgeable pilots from controlling our aircraft. Safe operations should be the number one priority of commanding officers; not 100 percent availability, not launching marginal aircraft in marginal weather conditions, not airshows or fire-power demonstrations, not accepting commitments that cannot be met by reasonable effort. The can-do syndrome must be tempered by a recommending-no-to-the-boss attitude.

The end result – What assurance do we have that our accident rate will decrease even if an entirely new approach is adopted? The answer must be that if we do not improve, the Navy will run out of aircraft, and Congress will run out of patience and conclude the country can no longer afford us. ◄

Cut the Bull!

RECENTLY, a wing commander had this to say about mishap reporting:

"I have had quite a bit of heartburn in the past 3 or 4 months with some of our accident/incident reports and CO's endorsements. An accident report should state the facts: what happened, why, and what should be done to prevent the same thing from happening in the future.

"An accident report is not a fitness report to tell how great the pilot performs, or what a great asset he is to the local community. It is not a medium for promoting philosophy. It is not a time to practice your prose. Sit down and read all of the accident reports this year. The voodoo, black magic, and 'expletive deleted' contained therein is enough to make one barf.

"Please review the instructions and don't let an accident or incident report go until it meets requirements. Above all, don't release any more messages telling the world what a great guy it was that busted your airplane. Save that for his going-away party or his fitness report – that's where he will need it."

Not so fast!

Submitted by HS-2

MOST rescues, after the Mayday call or notification of ejection until the survivors are safely back on deck, seem compressed into a very short period of time. In a recent rescue, the actions which occurred were rapidly performed, and the rescue helicopters were quickly on the scene – too quickly!

The crews of three helicopters found that the time required for the survivors of an inflight explosion to descend in their parachutes can be an agonizingly long time. Unknown to the rescue crews, the survivors were subjected to hazards on the way down by the very presence of the search aircraft in the crash area.

A duty tanker had launched from a carrier, during blue-water operations, and was overhead tanking an F-14. The launch cycle was nearly complete, and three SH-3 helicopters were in the starboard delta pattern. Two of them had returned from ASW missions.

Suddenly, the tanker package caught fire and exploded. The pilot and BN ejected at 9000 feet, 6 miles from the carrier. Their seat pan URT-33 radio beacons provided an excellent, initial vector. The lead helo pilots were able to quickly locate the aircraft's point of impact and saw wreckage in the water.

The helicopter pilots knew it was important to quickly locate the survivors in the rough seas, and began a low-level sweep of the area without success. No survivors were sighted. Numerous other search aircraft were called into the area. The on-scene commander and several fixed-wing aircraft were orbiting at intermediate altitudes overhead. The three helicopters and an S-3 were searching down low.

Above all this activity, the survivors were floating down almost onto and between the search aircraft. Ten minutes after ejection, they reported, via the PRC-90, that they were in the water and OK. They were located between 1 and 2 miles from the wreckage and within one-half mile of each other. The pickup phase of the rescue was without incident, and the survivors were back on deck 25 minutes after ejection. Not too shabby!

The data from the National Parachute Test Range, based upon tests with a 200-pound man under a fully-deployed chute, indicates that descent is about 18 feet per second (1000 feet per minute). NATOPS manuals for the various aircraft types reflect this.

Reconstruction of the events and the actions of the flightcrewmen indicate that: the *survivors descended between search aircraft* in the vicinity of the aircraft impact point; aircrewmen in the searching aircraft were unaware that the survivors were still descending in their chutes; no one was aware of the aircraft hazards to the survivors.

All SAR crews were made aware of their hazard to survivors under these unusual night conditions. The necessity to pinpoint the immediate location of descending flightcrewmen must be tempered to allow time for parachute descent prior to searching near datum for survivors.

Survivors bailing out at medium/high altitudes should consider (time permitting) activating their strobe light during descent, day or night. This will enhance their detection and go a long way toward marking their position and making their pickup easier. –Ed. ◄

SALTY BIRDS

By LT Allen S. Conrad
NAS Whidbey Island

Scenario 1 – WESTPAC, USS KISKA, 120000Z MAR '77, Aircraft Incident Report

VERTREP evolution between two AEs in a zero relative wind environment. Within 30 minutes of each other, two H-46s in a VERTREP pattern lose power on their No. 1 engine, and No. 1 N_f drops to approximately ground idle, after reducing power in a pedal turn. Backfire-like noises are heard by personnel on both ships; engines on both aircraft come back on line before landing on the ship.

Scenario 2 – (July '78 APPROACH Bravo Zulu)

An H-46 was making cast and recovery operations with a Jacob's ladder. After 13 pickups, the aircraft was proceeding to the next man at 10 feet/5 knots when No. 1 engine dropped to ground idle and the aircraft settled into the water. The No. 1 engine came back on line and the No. 2 engine dropped to ground idle. Number 2 came back on line and the aircraft made a water takeoff and recovered at homebase without further incident.

Scenario 3 – (OCT '78/JAN '79 APPROACH Bravo Zulus)

Two SH-3G aircraft were hovering, on drone recovery missions, when their No. 2 engines lost power, with popping sounds and a rise in N_g and T_5. The aircraft settled into the water, and engine power was regained on emergency throttle. The aircraft made water takeoffs and recovered successfully at homebase.

In all of these scenarios, the helos were in a high salt spray environment for an extended period of time. I believe compressor stalls, due to salt encrustation, caused the engines to malfunction. The H-46 NATOPS manual states: "When the stall margin is lost due to salt encrustation, relatively minor power reduction . . . can cause near simultaneous loss of power from both engines (compressor stalls)."

In scenario No. 1, the engine dropped off the line when the collective was reduced in the middle of a pedal turn, after placing the load on the receiving ship. None of the crew heard any unusual noises; however, the captain on the bridge wing of one ship stated that he heard noises, similar to car backfire, from the helo just before the engine dropped off the line.

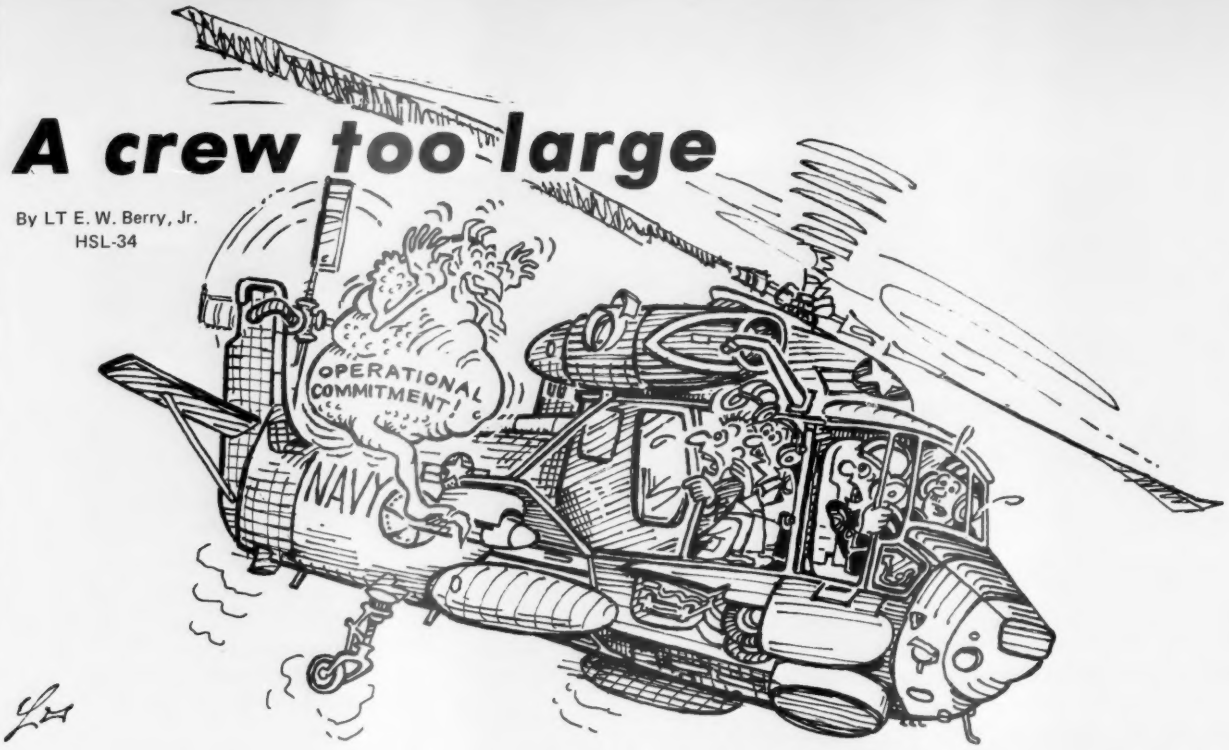
Salt encrustation is insidious; there is very little warning before compressor stalls strike. Prior to the events in scenario No. 1, I had never experienced any noticeable salt encrustation problems during VERTREP evolutions, but I was also never VERTREPed in a zero wind situation for an extended period of time. Most helo pilots are concerned about the amount of additional power required in a zero wind situation, and tend to overlook the abnormally high rising salt spray. On approaches to ships with deck heights above 30 feet, salt spray generally isn't a problem. This is because the relative wind blows the salt spray aft of the helo, or the aircraft is only momentarily in the spray on an approach.

Many helo accidents attributed to engine failure resulted from compressor stalls caused by salt encrustation. In the scenarios cited, the engines didn't sustain any internal damage. However, this is not always the case. Catastrophic engine failure can result if the compressor stall FODs the engine with turbine blades.

There are times when helo operations in a high salt spray environment are unavoidable, e.g. landing on an FF or rescuing an aviator downed at sea. The helo pilot should keep in mind the risks involved, and hover out of salt spray if possible and, if not, minimize the time in the salt spray and keep a close eye on the T_5/torque relationship. Expecting the problem may not prevent its occurrence, but it may decrease its consequences. ◄

A crew too large

By LT E. W. Berry, Jr.
HSL-34



THERE we were, a crew of four, two pilots and two crewmen, but we also had an extra companion, *operational commitment.* We hadn't really noticed our extra "passenger" until we left NAS Norfolk. We were too busy.

Our detachment aircraft had experienced numerous mechanical problems during the 2 days prior to our deployment. After two very long days involving test flight after test flight, the decision was made – take another aircraft. The frigate we deploy on had already departed Charleston on its way to Mayport. Looking back, I guess it was about this time that our unwanted "passenger" got aboard.

Early the day that we *had* to go, our preflight revealed some major discrepancies. The repairs took time. The weather, meanwhile, had gone solid IFR for the entire route of flight (naturally), some 600 miles. So, late in the afternoon we launched. Our extra "passenger" was quiet for the entire first leg. Arriving at MCAS(H) New River, we refueled and got a bite to eat. It was the first time either pilot had eaten all day.

The checklists were done quickly, but a few small errors were made. Our unwanted "passenger" had broken his silence at last. Since we were in a hurry, no mention was made of these errors by either pilot, but I made a mental note of them. We were soon airborne and back in the clouds before reaching 1000 feet. We continued en route to Charleston AFB. I was navigating and made a small error. I knew we were in trouble. We had allowed our companion, *operational commitment*, to work us neatly into a corner.

The HAC had the same realization as I, and we were both very tired. We still had four arduous hours of IFR flight ahead of us. To make our commitment, our "passenger" told us, we had to get to Mayport that night. He also told us rather reassuringly that we had done this sort of thing before; it would be no sweat. He was right – except for the no sweat part.

We had done something similar on two previous occasions, but we were never this beat at the start. Then he really began stacking the cards against us – our detachment personnel were already aboard the frigate; Mayport was going to close 30 minutes prior to our arrival; we would miss a big ASW exercise; the squadron was counting on us; etc. The reasons for continuing were many. We finally told our "passenger" to shut up so we could think.

We both admitted that we were tired. Being aware that you are in trouble is vital to self-preservation. From that point on, until we finally landed in Mayport at midnight (they held the field open for us), I was scared.

The biggest single factor against us was fatigue. Three days of pushing ourselves, the time constraints, and poor weather all added up. Admitting we were in trouble had a lot to do with keeping us alive. But aside from the apparent circumstances, I had to ask myself, "How far do I go to make an operational commitment?"

Remember, the next time you strap in an aircraft, your old companion, *operational commitment*, is probably along for the ride.

"Here we go again!"

By LCDR Mike Brown
ASO, HS-4

WESTPAC . . . all right! Two hectic days of liberty in Hawaii, transpac, withdrawals on San Miguel, Philippine operations, exotic ports . . . memories for the "salts," excitement and adventure for the "nuggets." It always stays the same, the pattern never changes.

Unfortunately, this is also true of the safety hazards which always face a carrier and its embarked air wing en route to WestPac. The workups are over, all the discussion and motherhood statements concerning safety have been tossed around, filed, and forgotten. The ship's divisions blame the air wing for unsafe conditions, and the air wing, in turn, points its finger at the ship. Sound familiar?

At this point do you throw up your hands, in the traditional salute, and say to yourself, "So what? I'll never be able to change the pattern. It's going to take an accident to wake people up again." This pessimistic statement does not have to be true if the air wing safety officers and the ship's safety department can unite into an effective, powerful arm to analyze, correct, and prevent safety hazards.

There is no need for any shop to be without a fire extinguisher. Every member of the air wing should have a blindfold escape drill. Mishaps should not be an air wing, squadron, or ship mishap; they should be everyone's mishap. Pointing the finger does not prevent accidents; concentrated, unified effort does. If every safety department in the air wing and the ship's safety department become a workable, cohesive unit, the problems which face any individual unit are not as complicated and unsolvable. A united team does not need to place the blame on any individual unit, because everyone is more interested in achieving a solution and creating the safest operational environment possible. The advantages become readily apparent:

- An available pool of school-trained talent with individual ideas that come together to form a comprehensive safety program for the entire deployment.
- A safety survey team composed of all CVW safety officers. During transpac, every squadron and ship department can be given a safety survey, pointing out potential hazards, thus reducing the hazard potential associated with change in operational areas.
- The fact that everyone is heading in the same direction for the same purpose reduces duplicity and the "reinventing of the wheel" syndrome which always seems to accompany any carrier/air wing evolution.
- Each member of the CVW/ship safety team will be more aware of problem areas associated with sister squadrons and ship's departments, and will have a greater appreciation of individual unit's mission capabilities.

Currently, the air wing and carrier that I am embarked in have adopted the program that has been described. It is a dynamic and growing concept enjoying high-level command support.

During the transpac, the combined air wing safety survey team, composed of safety departments from every squadron, conducted extensive safety surveys on every squadron, and every ship's department. The results of these surveys, as yet, have to be determined. However, the weak areas and potential safety hazards which were discovered are in the process of being corrected, and safety awareness throughout the ship/air wing has been increased tremendously. Additionally, the communication which has been established between air wing and ship personnel is continuous, and positive steps to prevent accidents are now a reality and not just idle statements. The carrier/air wing safety team has also established an *air wing safety officer of the day* watch station. This provides additional personnel on the flight deck and hangar deck during air ops, and has proved to be highly successful in enforcing safety regulations during high tempo operations.

This air wing and carrier have proved that a unified front, designed to reduce safety hazards and produce effective operations, can and does work for the benefit of all personnel. The use and benefits of such a CVW/ship safety team are numerous and, with a little effort and imagination, can become a powerful tool to prevent accidents during a typical WestPac deployment. The old, bad habits can be changed, but only if you and I are willing to do it.

TOO LATE NOW!

By AO2 Louis L. Goodman
Naval Air Test Center

July 21, 1976. A bright, hot day on the ramp at NAS Guantanamo Bay, Cuba. The morning activities proceeded normally, with routine launches and landings. At approximately 1030, a C-131 taxied onto the runway for a one hour flight. Aboard were several commanders and the base commanding officer. The aircraft completed the first part of its flight and taxied to the line to allow

one of the commanders aboard to disembark. To bring the aircraft in, an experienced lineman and a trainee were sent out. The aircraft was chocked, the port engine was shut down, and the hydraulic passenger door swung up. The ladder swung down to the ramp, not completely unfolding on the way down. The trainee, waiting by the door to obtain the landing gear pins from the enlisted aircrewman, grabbed the handrail near the bottom of the ladder and pulled it to allow the ladder to unfold completely. As the ladder straightened, the trainee felt a small jerk as he pulled his hand away from the ladder. The trainee felt no pain, so he thought nothing of that small jerk.

While the trainee was pulling out the ladder, the aircrewman had thrown the landing gear pins to the experienced lineman. As the trainee turned his hand to obtain a pin from the experienced lineman, his palm filled with blood. It was then that he realized that the small jerk he had felt was part of his finger being pinched off as the ladder straightened out. The trainee was rushed to the dispensary.

The severed portion of the trainee's finger was found pinched between two pieces of 1½-inch tubular steel, by a standby aircrewman. He partially refolded the ladder, allowing the piece of the finger to fall to the ground. He then wrapped it in his handkerchief and brought it to the dispensary.

As the doctor lifted it out of the handkerchief with a pair of forceps, it resembled melting cheese, with bits of it falling to the floor. After an hour or so of cleaning and soaking the injury, the trainee was informed that all that could be done was to cut some more of the bone out, to get enough skin to close the finger up.

To be told that part of you is gone, lost forever, is an awful feeling. It is, by far, one of the worst feelings I have ever experienced, and I hope to never experience it again.

This minor accident occurred over 3 years ago, yet my right hand stands as a constant reminder of that day, of my feelings, and that no accident is minor to the person that gets hurt.

I realize that I was lucky. Instead of a small part of a finger, it could have easily been by entire hand or part of my arm. But it could have just as easily never happened, had I given a little more forethought and attention to what I was doing at the time.

Careful communication

By LCDR Ron Kuehn
VP-56

A RECENT publication revealed 7600 injuries in 1 year, in the Navy. This equates to a loss of 1.9 million man-days or 5200 man-years – a sufficient number to man one carrier or 40 SSBNs for a year. This same publication listed the direct cost of material or equipment, due to accidental damage, to the Navy to be at least $450,000,000 per year. Indirect costs, consisting of retraining, survivors benefits, and readiness degradation, were four times as great, resulting in over 2 billion dollars annually for accidents.

Needless to say, costs of this magnitude must be reduced. The naval aviation community has done just that. Over the years we have reduced our accident rate by a quantum jump. Becoming convinced that high-performance aircraft are mercilessly unforgiving, and lives immensely important, a great deal of attention has been focused upon accident prevention.

Everybody knows that proper procedures on the ground and in the air are a must, but often there is a breakdown between what we know and what we do. So what is the problem, or problems? The problems are legion! But there is one problem which gives birth to and agitates the total more than any other, and that is the problem of poor communication.

The increase in top and middle management interest, involvement, and monitoring have had an unquestionably positive effect in accident prevention. Those supervisory personnel who keep abreast of developments, maintain a rapport with the men, and take leadership responsibilities seriously have the respect and ear of the men. They *will* listen. All too often, however, nothing is being communicated, or it is too little, too late, and ineffectively done. In short, communications know-how is woefully lacking. Since communication is such a critical part of our safety programs, following are some words of wisdom of which every communicator in the safety ranks should be aware.

First, repetition is necessary. Statistics have shown that 30 percent of what is said is lost in transmission and, at best, only 50 to 60 percent is retained by the recipient. When preoccupation with something other than the subject at hand is present, the retention percentage drops drastically. This means the communicator must know what needs to be said and say it repetitiously. That's right! The communicator must know how to clothe his essential points in varied costumes, so the recipient hears the main points over and over. The most effective speech I ever heard was one given to a graduating class, where the speaker repeated no less than seven times, in different manners, the main point of his speech. The kids sat on the edge of their seats the entire time. *You* can command this type of attention, too, even on the subject of safety. Don't ever hesitate to repeat the main points.

Second, you can say too much! It has been said, in an information-rich world, a wealth of information means a dearth of something else, a scarcity of whatever it is that information consumes (i.e., people's attention). Take time to thoroughly analyze the situation, then say only what needs to be said. In a word, develop "coordination acumen" – an ability to view the relevant parts of a situation, envision the proper perspective regarding people's needs, and harmonize them into one orchestration. Remember, you can say too much.

Third, the stage must be set! Mannerisms, attitudes, and characteristics are important. Create a climate of trust and confidence. Give the people reason to believe in you. Let them know they are important and that their opinions are

important as well. Be aggressive, showing a desire and willingness to share information with others, as well as creating the opportunity for them to share with you. Base all that you say and do, to set the stage, upon the foundation that the vast majority of people can do almost anything, provided they are well trained and understand the reason for doing it.

Fourth, be aware of some of the more pronounced barriers that inhibit effective communication:

Location – Regardless of where your office is, get with your people so that they identify with you. Don't shun their work areas.

Complexity – Know when it is necessary to bypass or establish new channels of communication. Clogged channels or unnecessary filters only tend to inhibit.

Distortion – Be sure what is received is the same as what is transmitted. Indescribable confusion, hard feelings, and disasters have occurred because of distortion.

Failure to Act – Do what you say you're going to do. Credibility will be lost quickly if you don't.

Nonreceptivity – If your ideas are the only ones that count, and the others mean nothing, you may as well hang up your hat. Be receptive.

Inconsistency – Develop a systematic plan so that your stability, consistency, and sincerity come through.

No expectation – If you believe nothing can be said that will do any good, nothing will happen. Be positive, enthusiastic, and expectant.

Fifth, be aware that the media and methods you may use to communicate are diverse. Some of those in use are: informal day-to-day contacts, informal gatherings, committees, opinion surveys, etc. Your choice! Determine the correct ones for your program and your objectives.

Speaking of objectives, what are they? If you are like most, your objectives are to evoke responses or changes in attitudes. How are you going to do this? What is your plan?

Finally, let me suggest that you formulate your plan around the objective of stimulating your men to be safety conscious in all they do. Now, *analyze* the needs of your people (considering their goals and interests), *collect* information and materials, *select* the medium, *consult, communicate, execute, follow up* with action, and *gather* feedback, all focusing on your objective. (Be ready for fine tuning.)

If you will do this, while observing the five areas mentioned above, your safety program of the future is *guaranteed* to be better than your safety program of the past. ◄

To go or not to go...

By SSgt David L. Amsden
303 TAS (AFRES)
Richards-Gebaur AFB, MO

SOMETIMES tempers flare unnecessarily between crewmembers. This most often happens when there is a question of professional judgment, particularly between flight engineers and pilots, about a system malfunction. For some reason, pilots seem to feel their position of command is being threatened when an FE says, "This bird will be on a 'red X' when we land."

It's at this time these few pilots take offense and try to change the engineer's mind with statements such as, "There's no maintenance at the base we're going to, so let's not say anything 'til we get home," or, "Yeah! That's out of limits all right, but let's just keep an eye on it." And then there's the ever-popular, "We'll shut that engine down after we take off; the plane flies almost as well on three engines and I can handle it!" That sounds very gung ho and macho – and dumb!

True, having one of four engines shut down isn't all that bad, if nothing else goes wrong. But it seems that, too often, accidents are caused by compounding malfunctions. If only these pilots would understand that the engineer is doing the job he was hired to do, and that anyone can down an aircraft when, in his opinion, it is unsafe for flight. After all, what's a few more minutes or even hours on the ground if this ounce of prevention could save lives and valuable property?

It always amazes me that a pilot (or any other crewmember) would want to fly an aircraft when unsafe conditions exist. Remember, flight engineers don't create the conditions, they just observe them and report them, along with sound recommendations. And it usually isn't a problem of the FEs not wanting the aircraft to fly; it's just that he values his life more than any peacetime mission. In an ending note, an engineer doesn't necessarily not want to fly; it's just that when the brave, macho, mission-hacking, flight-oriented pilot crashes, the engineer dies about one-tenth of a second later. Let's all fly safe and longer.

Reprinted from *The MAC Flyer*, Feb '79

We believe that many Navy and Marine Corps FEs agree wholeheartedly with the author. While there is room for prudent judgment on the part of the pilot, in many cases there is not as much room as many pilots would like to think. – Ed. ◄

Letters

Use All You Can

New Orleans, LA – In reference to the article on pg. 7 of JUN '79 APPROACH, which begins with the sentence "The driver of a multimotored aircraft, . . . ", the second from the last line states, " . . . [he] didn't *need* the extra runway, and the error in judgment resulted in a mishap." Did I read and understand correctly what was printed? It leads me to conclude that APPROACH believes the pilot's judgment in electing to use the entire runway caused the accident.

I am of the opinion that APPROACH committed a grave error when implying that not all of the runway is needed for takeoff. What happened to the very sound thinking and teaching that runway behind you on takeoff (or landing) is absolutely useless. Of course it is not all needed, until it is needed.

The cause of the accident remains with the pilot, however. Improper centerline alignment prior to beginning the takeoff roll was the cause.

My credentials: I am a civilian pilot with a current commercial certificate and the following ratings: single engine, multiengine land, single engine sea, instrument, and instructor (airplane and instrument). I have been flying for 21 years and have accumulated 5000 logged hours, of which 2000 hours is instructing both instrument and aircraft. I paid for all my training out of my pocket. I have owned airplanes from a *Champ* to my present instrument-equipped *Beech Debonair*, which I fly on personal and Navy business. I have been involved with naval aviation for 20 years as a contractor or Navy employed avionics field representative. I have many hours in many parts of the world in the P-2/P-3 series aircraft as an instructor of Navy technicians and operators "back in the tube."

I never miss reading each copy of APPROACH from cover to cover.

Harry E. Bladow
NAVAIR/NAESU Field Service Rep.
CNAVRES

• A quote from the referenced article follows: "No one will fault the pilot for wanting to use all of the runway but, when he back-taxied to an unlighted part of the concrete, he built a hazardous situation into his lineup maneuver." It was the pilot's decision to leave his taxi lights off during the back-taxi that we seriously questioned. We've had several recent incidents caused by the pilot's failure to use his taxi lights. It seems that commands need to reinforce their importance.

Let's All Get Together

NRDC, Orlando – On pg. 13 of the JUN '79 issue of APPROACH, your cartoon depicts the very reason the crewmember of the P-3 did not go to the dental officer in the first place.

We here in recruit training spend hours trying to allay fear in the minds of our young men and women about dentistry; yet, your magazine destroys the very thing we are trying to accomplish. There's no wonder we hear repeatedly, "What happened to the sailor after boot camp?" Let's all get together.

CAPT H. C. Pund, Jr.
Naval Regional Dental Center

• Our cartoon was obviously an exaggeration, as most cartoons are. Our point was that easily treated medical/dental problems can become real painful experiences if they are taken into the air. Our apologies for thwarting your efforts.

Re: "A Slick Job of Spotting"

NAS North Island – (Air Breaks, APR '79 APPROACH.) Month after month, I am continually impressed with the quality and professionalism of your magazine. It is one of the best tools available to increase safety awareness and promote NATOPS.

However, it appears that you missed a very important point during your presentation of the subject article. You have led the reader to believe that the *Viking* played a part in the accident by not reducing power sooner. It would be very hard to find a pilot of any aircraft that would have immediately reduced power while in tension on the cat. Obviously, the onus was on the cat officer to expeditiously suspend the cat and give the power back signal.

Thanks for your efforts. VS-29 appreciates it. Keep up the good work.

LT J. W. McCaskey
VS-29

• You are exactly right. We received several letters bringing this mistake to our attention. It would have been foolish for the *Viking* pilot to reduce power while in tension. The incident referred to could have been prevented by one of several people, but the *Viking* pilot wasn't one of them.

Re: "QA – What Does it Mean?"

NAS Memphis – (APR '79 APPROACH.) 'Twas indeed a glowing account of that vital member of the naval aviation team. However, there is the misleading impression that the QA Division is tasked with aircraft incident reports. Aircraft Mishap Reporting

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

is a function of the Aircraft Mishap Board under the auspices of the Safety Department.

The QA Division is tasked with the Engineering Investigation/Quality Deficiency/Safety Report. If the mishap involves material failure/malfunction, quality control, technical documentation, or maintenance procedures or, if an EI is needed to assist an accident investigation, the combined report is sent and is a team effort.

OPNAVINST 3750.6L and 4790.2A provide details of all the ifs, ands, buts, ors, and maybes.

AT1 Harold D. Neal
QAR VR-53

• Sorry for the erroneous impression you got from LCDR Walters' article. Your statements are correct in all respects, except in the case of a unit that has no formal safety department.

Re: "No Moon for SAR Pilots"

CGAS Elizabeth City – As a duty-standing helo SAR pilot in the Coast Guard for the past 13 years, I would like to welcome 1st Lt Jerome E. Penzick to the world of the helo SAR pilot. His experiences, while transitioning to HAC in the SAR community at MCAS Beaufort, closely parallel those of a Coast Guard pilot.

All Coast Guard air stations maintain a continuous B-0 response readiness posture (aircraft airborne within 30 minutes), and we too have had our problems with launching physically and mentally fatigued pilots. I agree that this is not an optimum condition. Some of our improvements have been to institute a watch relief for the ready crew at 1200. This allows the ready crew to sleep in on their duty day, and lessens fatigue significantly. Many of our air stations use a 1600 watch relief. The disadvantage of the 1600 relief is the officer not being available to perform collateral duties. The 1200 relief schedule provides a good compromise.

In reference to the procedures for a night, overwater approach to a 50-foot hover in the HH-46A not equipped with AFC and hover coupler, we too have this problem with our helos. For example, the HH-52, our single-engine, short range, recovery helo (150 km radius of action), is not equipped with a coupler. The Coast Guard procedure is an instrument approach (beep to a hover) to a 40-foot hover without external references until the helo is established in a stable hover. At this point the copilot attempts to establish visual reference. The details of this approach are available, and I would be very glad to discuss or provide copies to anyone interested in this procedure.

The Coast Guard mission also requires very close crew coordination. Most of our helo SAR load involves boats of less than 90 feet, with a great percentage at night (50 hours of night time in 6 months is average). This has led to a Coast Guard-wide SAR standardization program. This includes precise voice *commands*, given in reference to the fore and aft axis of the helicopter, and *advisory reports* that keep the pilot informed of everything else that is occurring during the rescue. This program has been so successful that I am not hesitant to launch at night for a pump drop, MedEvac, etc., with a hoist operator that I have never seen before.

If anyone is interested in any of the Coast Guard procedures or ideas, I would be pleased to discuss them with you. Contact LCDR Bob Melvin, H-3 Stan Officer, Autovon 723-1540.

A Safety Incentive Program?

FPO, New York – Safety is everyone's business, or is it? Isn't safety just something that the heavies talk about? We all know talk is cheap. We know, too, that lack of safety is expensive. In fact, some of us are aware that it cost the P-3 community over $93 million to be unsafe last year. It cost the Navy over $467 million in the aviation community alone last year.

So what? The Navy is a pretty large organization; it can handle it. Anyhow, all everyone does is talk about it. Once in a while you see a sticker with "This is the person responsible for your safety" on it. Maybe even a poster or two.

The problem, then, is that safety seems to be something that the majority of us are aware of after the fact. How can the Navy MAKE safety everyone's business? They've told us that it's our job, but they've been saying that for well over a decade now and it doesn't seem to be working too well. How about an incentive program?

For the sake of discussion, let's use some arbitrary figures. Let's save some money . . . bunches of it. Let's give everyone in the Navy a year-end bonus, if they are safe. If we can save, say, $300 million in the next year, give everyone in the Navy a thousand dollar bonus. On the assumption that there are 120,000 men and women in the Navy, that comes out to $120 million to save $300 million. Pretty good, really, because now you've got everyone's attention. Everyone is either interested in or directly affected by safety, or the lack thereof.

If, for instance, I am seen CDI'ing (inspecting) a job from the desk instead of on site, someone is going to put a stop to it because it could possibly cost him or her. If someone is continually doing a careless job, he may not any longer because others are now being directly affected by his or her job; it's costing them money. Safety is no longer so many words in a lecture . . . it is now action . . . it is my business.

I don't know all of the ramifications, the management aspects, of this recommendation, but I do know that there isn't anything we can't overcome if we really want to. The question is, do we really want to do something about safety, or is it just a word?

AT1 John R. Grubbs
VP-23

Why "a little bridge"?

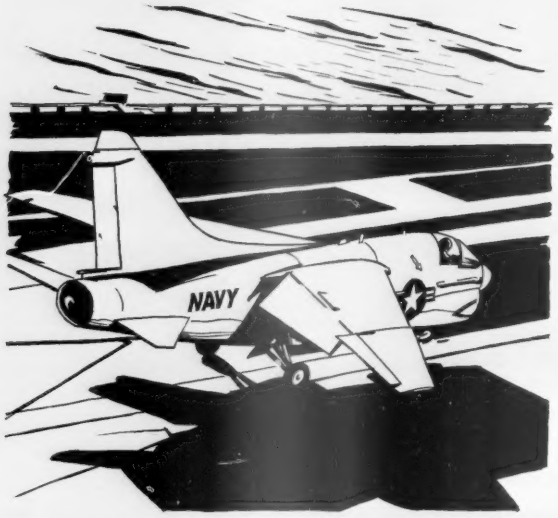
NAS Chase Field – The JUN '79 centerfold article, "How About a Little Bridge?" seems to be out of character and fails to measure up to the expected standards of APPROACH magazine. Ideally, there are no aviation personnel in the Navy similar to Michael and David. They are truly the bottom of the spectrum in responsibility and professionalism. If aviation personnel insist on replacing their blood with alcohol in a time frame disallowed by official order, fail to take adequate nourishment, and then immediately fly Uncle Sam's aircraft, they are guilty of a court martial offense.

Let's not treat irresponsible conduct in a light manner. I think we owe more to our country. Let's be blunt by saying that heads will roll from anyone whose lifestyles parallel these two losers. Maybe some aircrews need to indulge in that type of conduct for their macho thing. Personally, I still consider it a rare privilege to be piloting naval aircraft, and that alone fulfills my ego. I would hope that the majority of my colleagues hold a similar view.

Maybe the intent of the APPROACH article is simply a subtle reminder for aircrews to remain mentally and physically fit. Please enlighten me, and possibly other readers, as to the intent of the piece of fiction.

LCDR R. F. Frontz

• We also hope that the majority of your colleagues hold a similar view towards alcohol and aviation. The intent of the article was to remind any aviators like Michael and David that their irresponsible behavior has much more serious potential consequences than the wrath of their CO.



OVER THE HUMP

By LCDR Dale V. Raebel
VA-37

"IT'S just another one of those practice ACLS missions," thought Norm, as he finished his brief for his night hop. He had completed many of these before. "Piece of cake," he told the duty officer as he departed the readyroom. When Norm stepped out onto the flight deck, he found the weather a little worse than had been forecast. "It doesn't matter," he thought, "I can hack it."

He conducted his preflight on his A-7E a little quicker than usual, as it was cold and windy. Norm did cover most of the important items but, since there were only 2 more days left on the cruise and he would be home for the Christmas holidays, he concluded that a cursory look was good enough. His start, taxi, and catapult launch occurred normally, as it had so many times before. After Norm climbed through the overcast, he checked in with Marshal and informed them that he was ready to commence practice ACLS approaches as soon as the recovery was complete.

Norm kept thinking about the forthcoming return to CONUS and missed several transmissions delaying the recovery times. Finally, he heard his aircraft call sign and prepared himself for the descent to the ACLS pattern. As he entered the cloud layer, his airspeed indication suddenly dropped off. He quickly realized that he had forgotten to turn on his pitot heat. This appeared to correct the problem; however, the Vertical Speed Indicator indicated that he was descending faster than normal for his combined power and speed brake settings. "I wonder if I'm picking up ice, since I had to use my pitot heat," thought Norm. He leveled off at his assigned altitude of 1200 feet and noted the higher power setting required to hold him at 250 knots. He checked his speed brake, but it indicated "in," so he reasoned that it was just his heavy gross weight as he still had a large amount of fuel. He commenced his first approach while still in the clouds and discovered that it required a 1200 foot-per-minute rate of descent to stay on glide slope. "Oh well," he thought, "the ship is probably going downwind."

Norm initiated his waveoff at three-quarters of a mile, as directed by the controller. "It certainly requires a lot of power to get this thing to climb," thought Norm. He wondered why he couldn't see the ship until he started his downwind turn. Passing through 800 feet, he reentered the cloud layer. Norm mumbled, "Wow, this weather isn't what they said it was going to be."

Norm's next four ACLS approaches were similar to his first. Since his mind was on the return trip and the holiday season, he did not analyze the possible reason it required more power to maintain the same rate of descent on each successive approach.

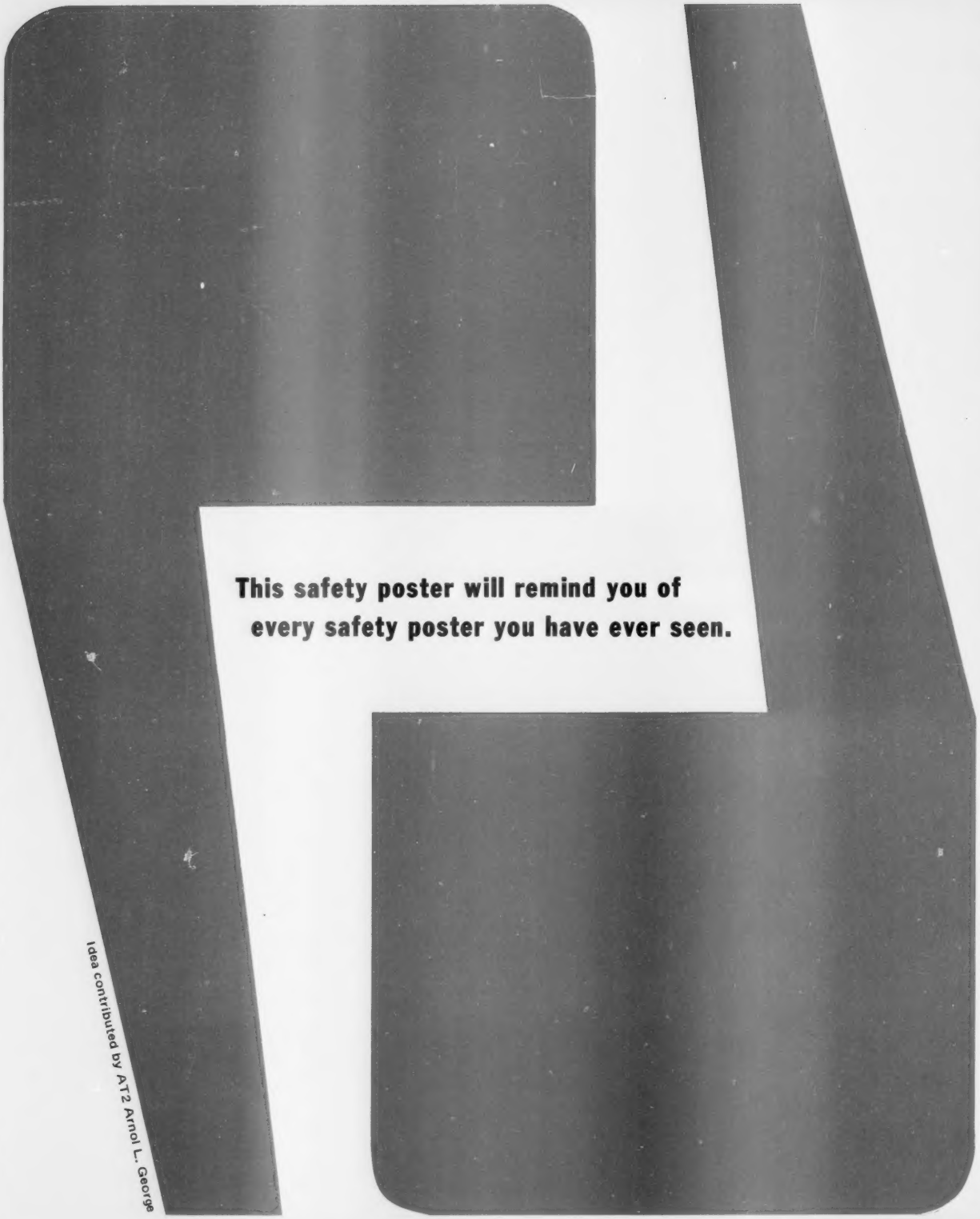
Since it was the final recovery for the night, Norm was directed to remain at 1200 feet in the ACLS pattern. His next approach was to be to an arrested landing. He dropped his hook and began his final Mode II approach. Since the ship had turned into the wind, Norm found that it only required an 800 foot-per-minute rate of descent to keep him on glide slope, but a high power setting. At three-quarters of a mile, he was directed to call the ball, but Norm couldn't see the ship. He advised the LSO of his plight and was told to keep it coming, as he looked OK. Norm still couldn't see the ship, so he executed his own in-close waveoff.

As he turned downwind, he suddenly realized that his side visibility was clear, but his forward visibility was not. "Darn," Norm said, "my defrost isn't on." Norm's final approach was much the same as his previous one. He was given a late foul deck waveoff, but unfortunately acquired an inflight arrestment. Norm walked away, but the aircraft, with 1 inch of ice covering the wings, received major damage to the nose strut area.

This same type of mental lapse, or atmosphere, does not have to occur at the end of the deployment. Will you allow it to happen in your squadron, to your shipmate, or to you? Remember the old naval aviation saying, "The ramp is just as hard on the last day of the cruise as it was on the first!" ◄

MANY HAPPY RETURNS

...preflight to be sure!



This safety poster will remind you of every safety poster you have ever seen.

Idea contributed by AT2 Arnol L. George